### Requirement for top bracing application

<table>
<thead>
<tr>
<th>No. of Cyl.</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral stays</td>
<td>B *1 / A *2</td>
<td>B *1 / A *2</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Longitudinal stays</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

**Remarks:**

A. The countermeasure indicated is needed.
B. The countermeasure indicated may be needed and provision for the corresponding countermeasure is recommended.
C. The countermeasure indicated is usually not needed.

*1 for standard rating fields (n_m > 176 rpm)
*2 for extended rating fields (n_m > 176 rpm)
1. Requirements for application of retention stays on exhaust pipe:

- The selected stays must have been accepted for use by the engine manufacturer, and their installation must be approved by the supplier. (Name and address of supplier)

2. Instructions on exhaust side (B5):

- The number of stays must be determined based on the requirements and the supplier's specifications.

3. Requirements for attachment points on the exhaust pipe:

- The type and number of stays must be as specified in the contract.

4. Computation of stay attachment points:

- The maximum permissible force in the direction of the stay is determined based on the engine's specifications.

5. Specifications of stay attachment points:

- The details include the maximum permissible force in the lateral and vertical directions.

6. Notes on maximum force:

- The maximum force acting on the stay is calculated based on the specified parameters.
### Requirements for application of hydraulic props on fuel and exhaust side

- The pitched props must have proper acceptance for both side engine installation. 
- Wanda approved supplier: 
  - Crown & Crown Engineering Co., Ltd
  - Pavo Marine Machinery Co., Ltd (Brazil)

- Installation on fuel side and exhaust side:

- The amount of props must be determined based on the requirement and props supplier specifications.
- The moment forces must be known and considered.
- The engine forces and moments are defined in the relevant engine dynamic data (stress, forces, and moments), which is based on the Marine Breidvald Group (MBP).
- Snap-on fastening forces (i.e., propeller hydraulic forces) must also be considered and are provided by the propeller supplier.
- The free attachment point must be covered with the specification.

- The maximum forces transferred by the selected prop type must be within the range as defined on the drawing for standard engine execution. If the total force per prop exceeds the permissible range, reinforcement of the platform attachment points can be requested from the engine builder.
- The props must adapt to the ship hull form and reduce the stress reaction force acting on the engine and ship hull attachment points.
- The props must increase the total stiffness of the system to avoid harmful resonance conditions. The dynamic stiffness of the ship's dynamic response is bounded by the propeller specification.
- The props must ensure that the maximum vibration frequency limits for the ship's 0.25% vibration criterion are met.
- The vibration isolation and cushioning of the props must be in accordance with the suppliers' instructions.

#### Requirements for props attachment points on fuel side (per engine prop)

<table>
<thead>
<tr>
<th>Max force (N)</th>
<th>Per prop</th>
<th>0.25% x 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max force per prop</td>
<td>200 N</td>
<td>200 N</td>
</tr>
</tbody>
</table>

- Maximum engine force resulting from internal forces of RPM type of the prop specific pitch pass...
MIDS - WinGD X92DF - Engine Stays (DG9715)

**TRACK CHANGES**

<table>
<thead>
<tr>
<th>DATE</th>
<th>SUBJECT</th>
<th>DESCRIPTION</th>
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<tr>
<td>2018-10-12</td>
<td>DRAWING SET</td>
<td>First web upload</td>
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<tr>
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<td>DAAD101549 DAAD101554 DAAD101557</td>
<td>Arrangement drgs – new revisions</td>
</tr>
<tr>
<td>2020-02-24</td>
<td>DAAD103623 DAAD101549 DAAD101557</td>
<td>Main and system drgs. – new revision</td>
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<tr>
<td>2020-08-26</td>
<td>DAAD101549 DAAD101554 DAAD101557</td>
<td>System drgs. – new revision</td>
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<tr>
<td>2020-10-01</td>
<td>DAAD103623 DAAD101549 DAAD101557</td>
<td>System drgs – new revision</td>
</tr>
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